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Job No.: CTCE/BBMP/W.No.18/KRIDL/WMM/Gradation/2015-16 19.08.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (East),** KRIDL, Bangalore.

Name of Work : Providing asphalting to main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.

Reference : AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015

Date of Testing : 19.08.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7405

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	125	125	1.7	98.3	95-100
22.4	2545	2670	36.1	63.9	60-80
11.2	1295	3965	53.5	46.5	40-60
4.75	1170	5135	69.3	30.7	25-40
2.36	855	5990	80.9	19.1	15-30
0.600	620	6610	89.3	10.7	8-22
0.075	595	7205	97.3	2.7	0-8

Note:

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Job No.: CTCE/BBMP/W.No.18/KRIDL/WMM/AIV/2015-16

19.08.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (East),** KRIDL, Bangalore.
Name of the Work	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
Reference	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	19.08.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	390	391	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	90	91	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	23.08	23.27	
	100* (W_2/W_1)%			23.18

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.18/KRIDLWMM/S-T/2015-16 19.08.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (East),** KRIDL, Bangalore.
Name of Work	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
Reference	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	19.08.2015

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Result : Flakiness Index = **12.30%**

Elongation Index = **13.65%**

Result : Combined Flakiness & Elongation index **25.95%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.18/KRIDL/BM/Bitumen/2015-16 25.08.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (East),** KRIDL, Bangalore.
NAME OF THE WORK	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
REFERENCE	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
SAMPLE I/D	Roads in Seethappa Layout, Ward No.18, BBMP, Bangalore.
DATE OF TESTING	25.08.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	483	482
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17	18.00
7. Bitumen content in %	3.40	3.60
8. Average	3.50	

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Job No.: CTCE/BBMP/W.No.18/KRIDL/BM/Bitumen/2015-16 25.08.2015

GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (East),** KRIDL, Bangalore.
NAME OF THE WORK	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
REFERENCE	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
SAMPLE I/D	Roads in Seethappa Layout, Ward No.18, BBMP, Bangalore.
DATE OF TESTING	25.08.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	36.52	7.56	7.56	92.44	90-100
13.2	90.25	18.69	26.25	73.75	56-88
4.75	258.6	53.54	79.79	20.21	16-36
2.36	40.26	8.34	88.12	11.88	4-19
0.3	21.36	4.42	92.54	7.46	2-10
0.075	6.59	1.36	93.91	6.09	0-8

Þ The results indicated above are based on the tests carried	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	30.26	6.28	6.28	93.72	90-100
13.2	86.35	17.91	24.19	75.81	56-88
4.75	265.4	55.06	79.26	20.74	16-36
2.36	49.32	10.23	89.49	10.51	4-19
0.3	25.32	5.25	94.74	5.26	2-10
0.075	11.25	2.33	97.07	2.93	0-8

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Job No.: CTCE/BBMP/W.No.18/KRIDL/SDBC/Bit/2015-16 29.08.2015

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (East),** KRIDL, Bangalore.
NAME OF THE WORK	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
REFERENCE	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
SAMPLE I/D	Roads in Seethappa Layout, Ward No.18, BBMP, Bangalore.
DATE OF TESTING	29.08.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24	26.00
7. Bitumen content in %	4.80	5.20
8. Average	**5.00**	

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Job No.: CTCE/BBMP/W.No.18/KRIDL/SDBC/Bit/2015-16 29.08.2015

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MiX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (East),** KRIDL, Bangalore.
NAME OF THE WORK	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
REFERENCE	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
SAMPLE I/D	Roads in Seethappa Layout, Ward No.18, BBMP, Bangalore.
DATE OF TESTING	29.08.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	22.36	4.70	4.70	95.30	90-100
4.75	255.8	53.74	58.44	41.56	35-51
2.36	50.26	10.56	69.00	31.00	24-39
1.18	35.62	7.48	76.48	23.52	15-30
0.3	36.25	7.62	84.09	15.91	9-19
0.075	40.25	8.46	92.55	7.45	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	36.58	7.72	7.72	92.28	90-100
4.75	260.5	54.96	62.68	37.32	35-51
2.36	29.55	6.23	68.91	31.09	24-39
1.18	32.62	6.88	75.79	24.21	15-30
0.3	39.65	8.36	84.16	15.84	9-19
0.075	52.32	11.04	95.19	4.81	3-8

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Job No: CTCE/BBMP/W.No.18/KRIDL/BC/Bitumen/2015-16 31.08.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (East),** KRIDL, Bangalore.
NAME OF THE WORK	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
REFERENCE	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
SAMPLE I/D	New BEL Road RC, Ward No.18, BBMP, Bangalore.
DATE OF TESTING	31.08.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	472
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	28.00
7. Bitumen content in %	5.00	5.60
8. Average	**5.30**	

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Job No: CTCE/BBMP/W.No.18/KRIDL/BC/Bitumen/2015-16 31.08.2015

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (East),** KRIDL, Bangalore.
NAME OF THE WORK	Providing asphaltingto main roads of Seethappa Layout and main and cross roads of Ashwathanagar in Ward No.18, BBMP, Bangalore.
REFERENCE	AEE(Hebbal)/PR/300/2015-16 Dated: 17.08.2015
SAMPLE I/D	New BEL Road RC, Ward No.18, BBMP, Bangalore.
DATE OF TESTING	31.08.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	43.25	9.11	9.11	90.89	79-100
9.5	33.62	7.08	16.18	83.82	70-88
4.75	74.56	15.70	31.88	68.12	53-71
2.36	66.32	13.96	45.84	54.16	42-58
1.18	43.21	9.10	54.94	45.06	34-48
0.6	57.65	12.14	67.08	32.92	26-38
0.3	44.25	9.32	76.39	23.61	18-28
0.15	30.26	6.37	82.76	17.24	12-20
0.075	42.25	8.89	91.66	8.34	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.25	7.47	7.47	92.53	79-100
9.5	45.25	9.59	17.06	82.94	70-88
4.75	65.32	13.84	30.89	69.11	53-71
2.36	62.32	13.20	44.10	55.90	42-58
1.18	71.22	15.09	59.19	40.81	34-48
0.6	42.32	8.97	68.15	31.85	26-38
0.3	35.62	7.55	75.70	24.30	18-28
0.15	42.23	8.95	84.65	15.35	12-20
0.075	39.65	8.40	93.05	6.95	4-10

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